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ABSTRACT

A 3-year experiment evaluated the effectiveness of the Pyramid program, an educational program for young children from deprived situations and based on two concepts: psychological nearness (principles of attachment theory) and psychological distance (derived from developmental distancing, or the growing ability of a child to comprehend that an object can be represented by something other than the concrete object itself). The Pyramid program uses thematic projects that are carried out cooperatively by a teacher and by tutors for low-scoring children. The aim is a high level of representation, and three intelligence areas are distinguished: emotional intelligence (socio-emotional development, personal development), cognitive intelligence (language and development of reading, thinking and development of mathematics, orientation in space and time), and motor intelligence (motor development, creative development). Parental involvement is also an important component. Comparison of children in the Pyramid program to a control group indicated that the Pyramid program, in which the distancing concept is the basis of thematic projects, is useful for preschool and primary school children; however, starting the program with 3-year-olds provided better results. A discussion of the "architecture" of the Pyramid concept is appended. (Contains 14 references.) (EV)

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Post modern and effective
The Pyramid program for three-to-six-year-olds

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Theoretical framework

From meta analyses by Royce et al (1983) and Leseman (1992), it is apparent that the educational programs for young children in deprived situations which are effective, are those that start early (at age 2 or 3), have a long duration (2 to 3 years), have a favourable teacher-child ratio and are characterized by intensive contacts with parents. Based on these findings, a new educational program, the Pyramid program (Van Kuyk 1997), has been developed in which the conditions are incorporated in the following way:

- A complete educational program for 3-to-6-year-olds, particularly for migrant children and for children with a low SES, with 4 half days a week for 3-year-olds and 9 half days a week for 4-to-6-year-olds (groups 1 and 2 of primary school). This program is carried out by a group teacher.
- Support by a tutor for 4 half days a week for children that belong to the lowest scoring 25% on the monitoring system based on IRT methodology (Eggen and Sanders 1993). This tutor mainly has a preventive task. In this way, a favourable teacher-child ratio is created.
- A strong parental involvement. The parents execute project activities at home.

The Pyramid program is based on two concepts: psychological nearness and psychological distance. Psychological nearness refers to the educational component in which the attachment theory principles (Bowlby 1969, Ainsworth, Blehar and Waters 1978, Erickson, Sroufe and Egeland 1985) are elaborated. This theory originally focused on mother and child relationships, but increasingly it is being applied in educational situations in preschool education and kindergarten. Psychological distance refers to the development component, which elaborates the distancing theory principles (Sigel 1970, 1993, Cocking and Renninger 1993). This theory also originates in the research into mother and child relationships and focuses on the effectiveness of the development. In this project, we confine ourselves to the distancing theory development component. This component is elaborated into a play program and a play enrichment program and into a Welcome program and 12 thematic projects. These projects are carried out after the Welcome program in periods of two or three weeks during the year. The themes are simultaniously carried out in the playgroups, in group 1 and in group 2. In each project four steps are distinguished, ranging from near (here and now) to distant (high level of distancing). The thematic projects form the core of the Pyramid program.

In order to expand the learning period of developmentally delayed children, the effective method of tutoring (Slavin et al 1994) has been opted for. Slavin uses tutoring as a tool for teaching children to read in the first grade. In the Pyramid program, tutoring is used for preschool and early primary school education, where it is applied to several developmental areas. The teacher program and the tutor program are included in the project books. Tutoring is primarily preventive, and precedes every step in a project.

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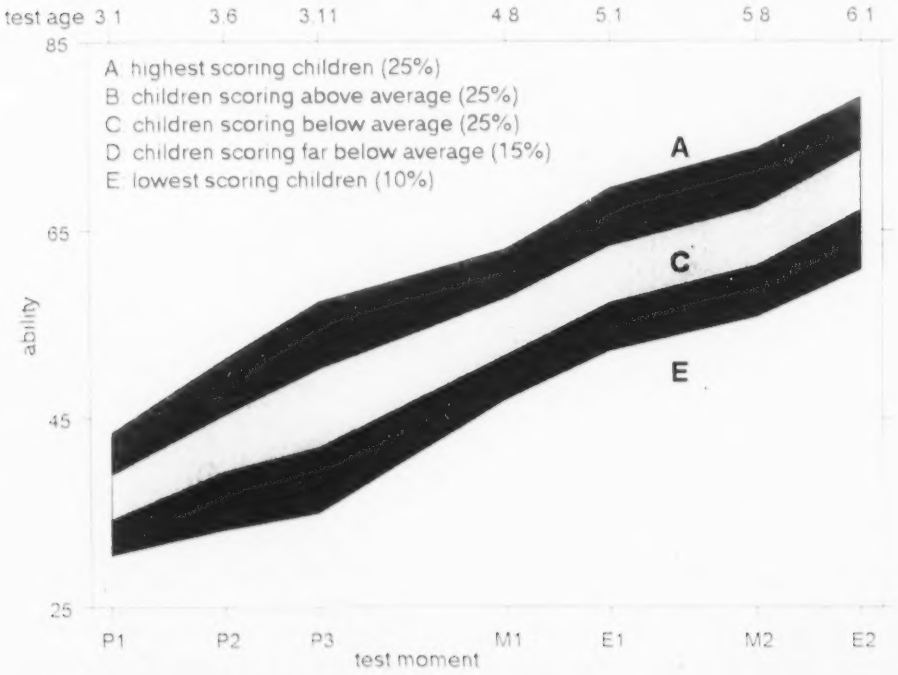
Psychological distance is the growing ability of a child to comprehend that an object (a thing, a person, an idea, a situation) can be represented by something else than the concrete object itself. Representations provide the possibility to abstract from the direct here and now. The distancing theory allows the distancing principle to be applied in various developmental areas (Cocking and Renninger 1993). In the Pyramid program, three intelligence areas are distinguished in which different developmental areas can be discerned: emotional intelligence (socio-emotional development, personal development), cognitive intelligence (language and development of reading, thinking and development of mathematics, orientation on space and time) and motor intelligence (motor development, creative development). Together, these areas make up the content of the thematic projects that are carried out co-operatively by teacher (group) and tutor (individual children). The aim is a high level of representation. Point of departure is orientation and demonstration (starting close to concrete situations and objects). This leads to broadening and deepening, in which a high level of representation is aimed for by withdrawing from the here and now, for example by anticipating, by asking reasoning questions, or by asking the child to solve problems.

Method

In a three year experiment (1996-1999), subsidized by the Dutch ministries of welfare and education and evaluated by the University of Amsterdam, teachers were trained in carrying out the Pyramid program. The training took place during the experiment. Six locations of large and smaller cities, with a combined total of 1640 children and 120 teachers and tutors, were involved. One of the locations was monitored from the beginning in a research setting. Using a language and thought monitoring system for 3-to-6-year-olds based on IRT methodology, the effectiveness of the program was assessed.
The control group consisted of the reference group of the student monitoring system for three-to-six-year-old children (Van Kuyk, 1996). The reference group is a representative sample of the Dutch population of 3-to-6-year-old children that visit playgroups and primary school. These children were monitored in a longitudinal study. The result of this investigation was a series of IRT scales for cognitive, motor and emotional intelligence.

Figure 1 Language scale



In figure 1 the language scale is presented. The scale shows that 3-to-6-year-olds can be tested 7 times, three times in the playgroup (P1, P2 and P3), twice in primary school group 1 (M1 and E1) and twice in primary school group 2 (M2 and E2). In the upper scale, the average age within the group at the moment of testing is shown. The scale has 5 norm levels: A: highest scoring children (25 %), B: children scoring above average (25 %), C: children scoring below average (25 %), D: children scoring far below average (15 %), and E: lowest scoring children (10 %). The scale was used as a means to assign tutor children (D and E levels) and to measure the effectiveness of the Pyramid Program. Looking at the development of the abilities of the reference group, we see that the differentiation in development during the playgroup period increases. In primary school the differences decrease.

In a quasi-experimental design two experimental groups were distinguished. Group I (N=26) followed the complete 3-year Pyramid program, and were monitored from the start as three-year-olds (in the playgroup) till the end of group 2. Group II (N=26) followed only the primary school program, starting as four-year-olds. This group was also monitored till the end of group 2. Consequently, the length of the monitoring period was three years for group I, and two years for group II.

Results

Figure 2 Results of the two experimental groups on language

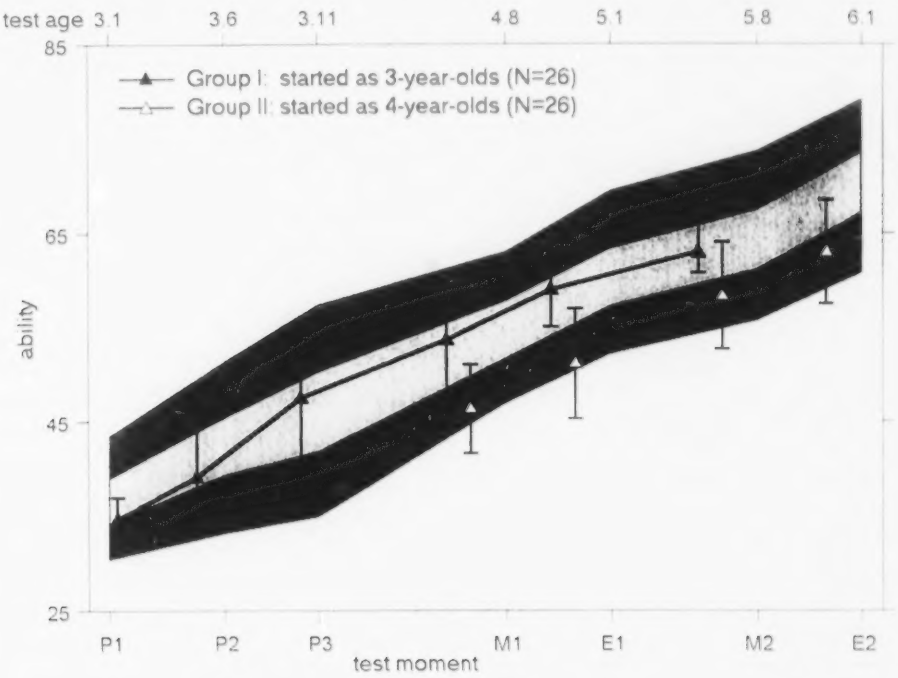


Figure 2 shows the results of the two experimental groups on language, compared with the reference group (control group). We see that the average score of the experimental children is on D level, far below average. In group I (playgroup children), development is quick in the first year of the program in comparison with the reference group. This result is maintained in groups 1 and 2. In group II (primary school), development is also quicker than in the reference group, but the results are less spectacular. The results of this group never reach the results of group I. The results in other developmental areas show the same trends.

Conclusion and discussion

As we have seen in the ability scale of figure 1, the learning potential of the three-year-olds is striking. This means that stimulating the development of playgroup children is useful. Looking at the results in figure 2, we find that stimulation of the playgroup children in the Pyramid program indeed works. Children with low SES and immigrant children profit more than children with a standard preschool program. It has to be marked that the profit is sustained in primary school when they keep working with the Pyramid program. Children who start with the Pyramid program in primary school (4-year-olds) also profit, but they don't reach the level the playgroup children reach and maintain during the primary school period. We can conclude that the Pyramid program, in which the distancing concept (Sigel 1970, 1993) is the basis of the thematic projects, is useful for playgroup children as well as for primary school children. However, starting with three-year-olds gives the best results.
This means that it is profitable to start formal education in playgroups with the Pyramid program and to continue the program during the first two years of primary school. As has been pointed out before, tutoring is an important instrument to help individual children that function on D and E levels in a preventive way, directly connected to the thematic projects. These outcomes are similar to the findings of Royce et al (1983) and Leseman (1992).

The outcome of this experiment is important to policymakers. First of all playgroup education should be a standard provision, especially for low-SES children and immigrant children. At present there is no legal obligation in Dutch society. As a result of this experiment and an experiment with the High Scope Program (Homann and Weikart 1995), in big cities such as Amsterdam, preschool groups were set up as a structural provision. These preschool groups work with the Pyramid program in primary schools. The local authorities provide additional funds for setting up playgroups for four mornings a week and for tutors, to have more 'hands' in the classroom. The tutor model is a flexible and fitting solution for trying to vary the amount of extra manpower in the classroom (depending on the gravity of the problem).

The tutor model, which was used by Slavin et al in the 'Success for All' program for learning to read in grade 1 (group 3 in the Dutch system), also works when used in a preventive manner, earlier on in the playgroup and groups 1 and 2 and in a broader context of thematic projects.

A structured, coherent and theory-based program such as the Pyramid program, in which teaching, tutoring and parental help are combined in a creative setting, can serve as a contribution to improve the quality of preschool and primary education.

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EECERA, Helsinki
September 1999

Comparison between programs and control group

Test	d (K-C) (N=99)	d (P-C) (N=114)
Vocabulary own language	.41*	.48**
Vocabulary Dutch	.14	.33*
Thinking processes	.12	.39*
Sorting	.43*	.58**
Block patterns	.26	.18

K: Kaleidoscoop, P: Pyramid, C: Control group

Covariates: Turkish, Moroccan, home language, SES, sex.

† $p < .10$; * $p < .05$; ** $p < .01$

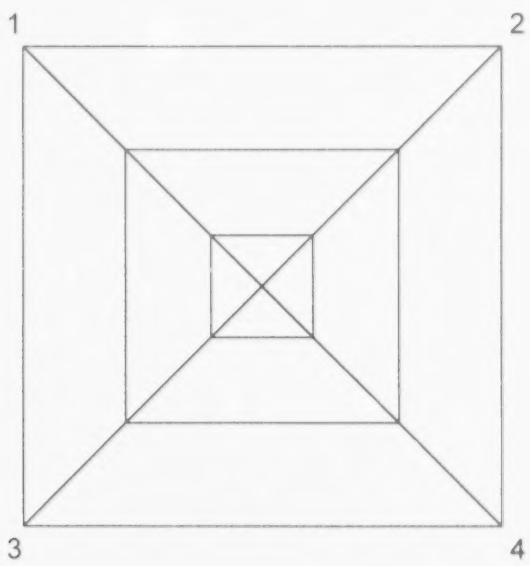
Source:
Leseman et al, *Evaluation of Kaleidoscoop and Pyramid - Report of the interim results*, University of Amsterdam, 1998.

The architecture of the Pyramid concept

Dr. Jef J. van Kuyk

In post-modern architecture architects not only look ahead - everything has been said and tried - but they also look back at existing and historically successful styles. For the design of new buildings they quote from these styles. They astonish, they shock and they make people think by looking back. This new movement in its turn creates a wealth of inspiration and fascinating new subjects.
In designing the new educational concept of Pyramid I have been inspired by this movement. Not just because it is a beautiful metaphor - an educational concept as a stable and solid and in this case pre-eminently historical building - but also because in psychology there are some very successful theories which can be quoted from when designing new educational concepts.

The Pyramid, the most solid and stable building known since time immemorial, is used as a metaphor for a solid, stable educational concept. The pyramid is a structure consising of four cornerstones and three levels.



This model is used to design the educational concept. Education is defined as the action of the adult taking care of the child, protecting it and at the same time making it independent. By giving support to the child - a kind of behaviour expressing love and care and oriented towards the physical and emotional well-being of the child, which will make it feel understood and accepted - we will enable it to develop the confidence it needs for its exploration of the world. At the same time the adult will have to take the risk to allow the child to become independent. The educator will have to find a balance between proper protection and sufficient space and support to let the child gain its independence. Children with chronic diseases, for instance, are often overprotected. They are not allowed to develop themselves sufficiently and start

showing behavioural problems. Lack of protection on the other hand creates a fear in children, which makes them feel afraid to develop themselves. Education in other words is protection, offering security to the vulnerable child which is not yet able to fulfill its tasks in life on its own and stimulating it to distance itself from its educator, even if this involves a number of risks. It is being and remaining close to the child and taking one's distance, thus allowing the child to become independent. This paradox called education is the basis for the four cornerstones of the Pyramid concept.

Architecture of the educational concept is based on the pyramid, stable and solid.The cornerstones of the pyramid serve as a model for the four elementary concepts and the levels as the three intervention levels.

Cornerstones

1. psychological nearness
2. psychological distance
3. child initiative
4. teacher initiative

Intervention levels

1. high level
2. medium level
3. low level

For the foundation of the elementary concepts and the levels the following theories have been quoted from:

Attachment theory: psychological nearness
Distancing theory: psychological distance
constructivism: child initiative
social constructivism: teacher initiative

Scaffolding theory: the three levels of intervention, the complement of child- and teacher initiative